WM-EX900

SERVICE MANUAL

Ver 1.1 2000. 01

AEP Model
E Model
Tourist Model

WM-EX900 AEP, French, Korean and Tourist model are almost same as WM-EX9 AEP, French, Korean and Tourist model.
This Service Manual contains only the points which differ from WM-EX9 AEP, French, Korean and Tourist model.
However accessories and packing materials are all listed.
For the informations not contained in this manual, please refer to WM-EX9 service manual (9-926-960-□□) previously issued.

• Difference of Exploded Views

Page	WM-EX9 (AEP, FR, KR, JE model)				WM-EX900 (AEP, FR, KR, JE model)		
	Ref. No.	Part No.	Description	Remark	Part No.	Description	Remark
24	5	A-3021-147-A	MAIN BOARD, COMPLETE (AEP,KR,JE)		A-3021-259-A	MAIN BOARD, COMPLETE (AEP,KR,JE)	
	5	A-3021-207-A	MAIN BOARD, COMPLETE (FR)		A-3021-308-A	MAIN BOARD, COMPLETE (FR)	
	6	3-029-923-01	LID (N), BATTERY CASE (GOLD)		3-029-923-31	LID (NA), BATTERY CASE (GOLD)	
	6	3-029-923-11	LID (L), BATTERY CASE (BLUE) (JE)		3-029-923-41	LID (LA), BATTERY CASE (BLUE) (AEP,KR,JE)	
	6	3-029-923-21	LID (B), BATTERY CASE (BLACK) (KR,JE)			————	
	9	A-3050-802-A	ORNAMENT (OPEN) BLOCK ASSY		X-3378-432-1	OPEN (SV-H) ASSY, ORNAMENT (GRAY)…(GOLD)	
	9		————		X-3378-433-1	OPEN (SV-W) ASSY, ORNAMENT (PEARL WHITE)…(BLUE) (AEP,KR,JE)	
	17	3-029-932-01	ORNAMENT (CASSETTE)		3-029-932-11	ORNAMENT (CASSETTE) (GOLD)	
	17		————		3-029-932-21	ORNAMENT (CASSETTE) (BLUE) (AEP,KR,JE)	
	18	X-3376-372-1	LID ASSY (N), CASSETTE (GOLD)		X-3377-887-1	LID ASSY (N), CASSETTE (GOLD)	
	18	X-3376-602-1	LID ASSY (L), CASSETTE (BLUE) (JE)		X-3377-888-1	LID ASSY (L), CASSETTE (BLUE) (AEP,KR,JE)	
	18	X-3376-603-1	LID ASSY (B), CASSETTE (BLACK)			————	
	20	3-029-205-01	MD COVER (JE)		3-039-380-11	COVER (A), MD (JE)	
	20	3-029-205-11	MD COVER (AEP,FR,KR)		3-039-380-21	COVER (A), MD (AEP,FR,KR)	
	22	3-029-921-01	CASE (N) (GOLD)		3-039-379-01	CASE (GOLD)	
	22	3-029-921-11	CASE (L) (BLUE) (JE)		3-039-379-11	CASE (BLUE) (AEP,KR,JE)	
	22	3-029-921-21	CASE (B) (BLACK) (KR,JE)			————	
	24	3-029-933-01	KNOB (VOL) (N) (GOLD)		3-029-933-31	KNOB (VOL) (NA) (GOLD)	
	24	3-029-933-11	KNOB (VOL) (L) (BLUE) (JE)		3-029-933-41	KNOB (VOL) (LA) (BLUE) (AEP,KR,JE)	
	24	3-029-933-21	KNOB (VOL) (B) (BLACK) (KR,JE)			————	

• Color Indication of Appearance Parts
Example :
KNOB, BALANCE (WHITE) ... (RED)
↑ ↑
Parts Color Cabinet's Color

• Abbreviation
FR : French model
KR : Korean model
JE : Tourist model

CASSETTE PLAYER

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• Difference of Electrical Parts List

Page	WM-EX9 (AEP, FR, KR, JE model)				WM-EX900 (AEP, FR, KR, JE model)		
	Ref. No.	Part No.	Description	Remark	Part No.	Description	Remark
26		A-3021-147-A	MAIN BOARD, COMPLETE (AEP,KR,JE)		A-3021-259-A	MAIN BOARD, COMPLETE (AEP,KR,JE)	
		A-3021-207-A	MAIN BOARD, COMPLETE (FR)		A-3021-308-A	MAIN BOARD, COMPLETE (FR)	
27	IC701	8-759-580-18	IC ML63514-017TBZ060		8-759-639-36	IC ML63514-019TBZ060	

• Accessories & Packing Materials

Ref. No.	Part No.	Description	Remark
	1-418-611-11	REMOTE CONTROL UNIT (RM-WME22L)	
	1-528-299-41	BATTERY, Ni-Cd (NC-6WM) (AEP,FR)	
	1-528-543-22	BATTERY, Ni-Cd (NC-6WM) (KR,JE)	
⚠	1-528-580-21	BATTERY CHARGER (BC-7HT) (JE)	
⚠	1-528-661-14	BATTERY CHARGER (BC-7DR) (KR)	
⚠	1-528-744-23	BATTERY CHARGER (BC-7DY) (AEP,FR)	
⚠	1-569-007-11	ADAPTOR, CONVERSION 2P (JE)	
	1-759-700-21	CASE, BATTERY	
	3-008-521-01	CASE, BATTERY CHARGE (AEP,FR,KR)	
	3-008-521-21	CASE, BATTERY CHARGE (JE)	
	3-029-488-01	POUCH, CARRYING	
	3-043-060-01	CASE, CHARGE (C/D) (JE)	
	3-867-900-01	MANUAL, INSTRUCTION (JAPANESE,ENGLISH, TRADITIONAL CHINESE) (JE)	
	3-867-900-11	MANUAL, INSTRUCTION (KOREAN) (KR,JE)	
	3-867-900-21	MANUAL, INSTRUCTION (ENGLISH,FRENCH) (AEP,FR)	
	3-867-900-31	MANUAL, INSTRUCTION (GERMAN,DUTCH) (AEP)	
	3-867-900-41	MANUAL, INSTRUCTION (SWEDISH,ITALIAN) (AEP)	
	3-867-900-51	MANUAL, INSTRUCTION (SPANISH, PORTUGUESE) (AEP)	
	3-867-900-61	MANUAL, INSTRUCTION (FINNISH,RUSSIAN) (AEP)	
	8-953-304-90	RECEIVER MDR-E805SP SET	

• Abbreviation
FR : French model
KR : Korean model
JE : Tourist model

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

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WM-EX9

SERVICE MANUAL

Tourist Model

Ver 1.0 1998. 10

Photo: Gold type

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol ◻◻ are trademarks of Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MF-WMEX9-162

SPECIFICATIONS

System	Compact cassette stereo
Frequency response (Dolby NR off)	Playback: 30 - 18,000 Hz
Output	Headphones ∩ jack Load impedance 8 - 300 ohms
Maximum output level	4 mW + 4 mW (32 Ω)
Power requirements	DC 1.5 V Nickel metal hydride rechargeable battery NH-14WM (N) (supplied) One R6 (size AA) batteries (negative ground)
Battery life (Approx. hours)	
Rechargeable NH-14WM fully charged	40
Sony alkaline LR6 (WM)	60
Rechargeable NH-14WM Sony alkaline LR6 (WM) used together	100
Dimensions (w/h/d)	Approx. 77.7 × 108 × 19.6 mm projecting parts and controls
Mass	Approx. 140 g / Approx. 205 g incl. Nickel metal hydride rechargeable battery NH-14WM (N) and a cassette
Supplied accessories	Battery charger BC-7HT (1) Rechargeable battery NH-14WM (1) Rechargeable battery case (1) Dry battery case (1) Stereo headphones with remote control MDR-ED132SP + RM-WME21L (1) Carrying pouch (1) AC plug adaptor (1)

Design and specifications are subject to change without notice.

CASSETTE PLAYER

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Notes on Chip Component Replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

SECTION 1
SERVICING NOTE

1-1. SERVICE MODE

Mode to allow the mechanical parts to operate with the audio board open.

This set uses the photo reflector PH701 to detect the rotation of the idler gear (A) (S side). PH701 is on the main board and so removal of the main board does not allow the set to detect the rotation of the idler gear (A) (S side). This makes motor control impossible which prevents normal operation.
When repairing the set as energized with the main board removed, proceed as follows:

1. Setting
1) Remove the case (refer to the Disassembly) and open the main board.
2) Connect the motor and plunger to the main board with jumper wire.
   The extension jig (1-769-143-11) (one set of ten wires) can be used for easy connection.
3) Short the TAPE IN switch land (BP701) with solder. Input a square (or sine) wave of 10 to 100 Hz (at 1.3 V) to both PH IN T land (TP60) and PH IN S land (TP61) with jumper wire.
4) Supply 1.3 V to the positive and negative terminals of the battery with a stabilized power supply.

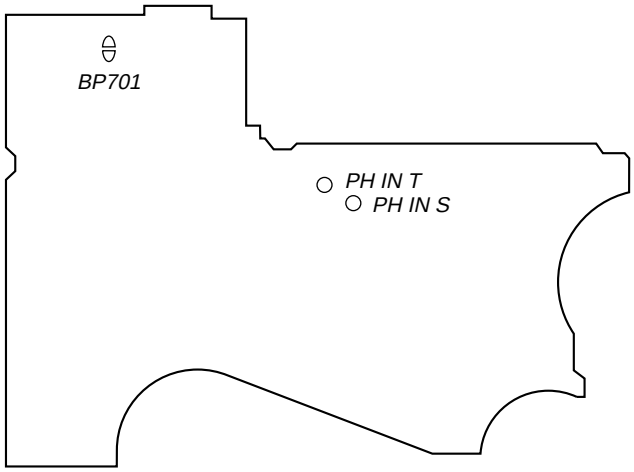
2. Preset state
The set must be in this state before the PLAY, FF and REW modes can be entered.
1) Make sure that the slider (NR) is in the center position and that the N/R switch (S701) is in the center position. Make sure that the reel gear does not rotate by rotating the flywheel on the F side clockwise. If improper, place the set in the preset state according to the following instructions:
2) Repeat the step below some times to ensure the above conditions.
* Pull away the trigger level from the plunger with twezers or other means. Then rotate the flywheel on the F side clockwise.
3) Turn the stabilized power supply OFF once and then ON.

3. FF/REW mode
1) Check for "2. Preset state" and push the FF switch and the REW switch.
2) Move the N/R switch (S701) to the movement of the slider to enter the FF/REW mode.

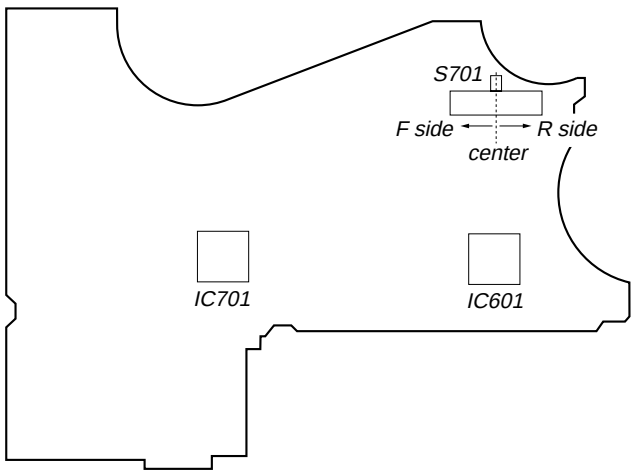
4. PLAY mode
1) Check for "2. Preset state."
2) Push the ◄ ► switch on the remote commander to move the lever (SW) toward the R side. With timing to this, move the N/R switch (S701) to enter the PLAY (R side) mode.

Note 1: If failed, retry from the preset state.
Note 2: The ◄ ►, ■, FF and REW switches on the remote commander should be used whenever possible.

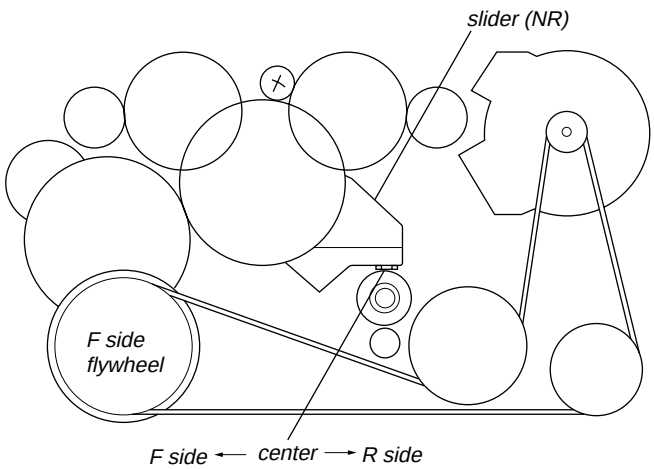
– main board (side A) –



– main board (side B) –

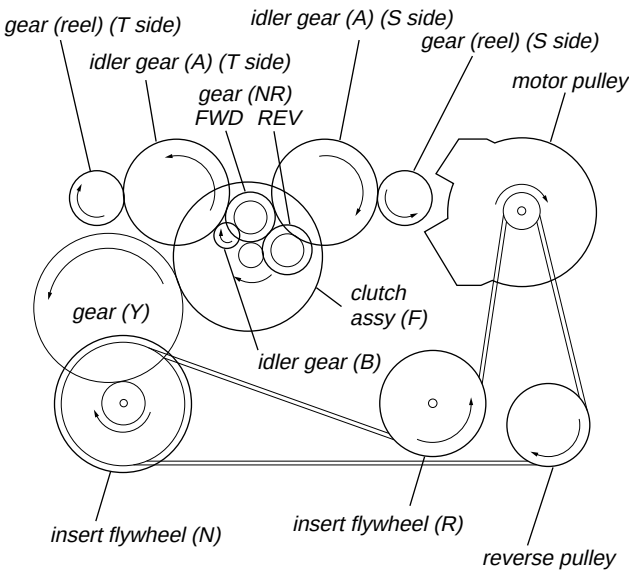


– mechanism deck –

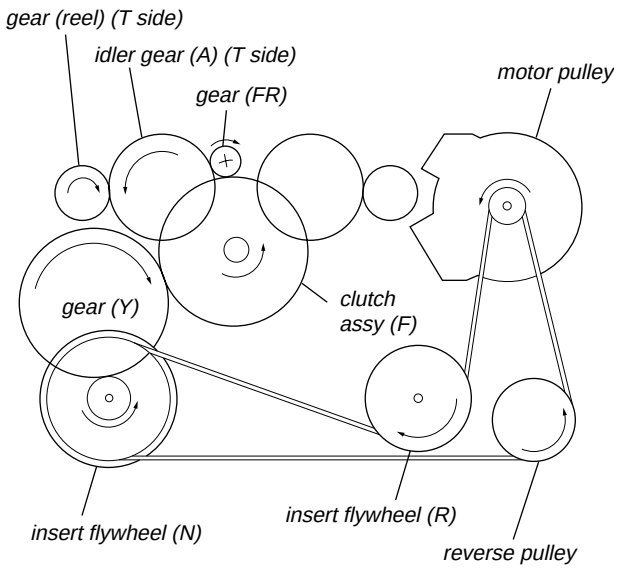


1-2. ROTATIONAL SYSTEM

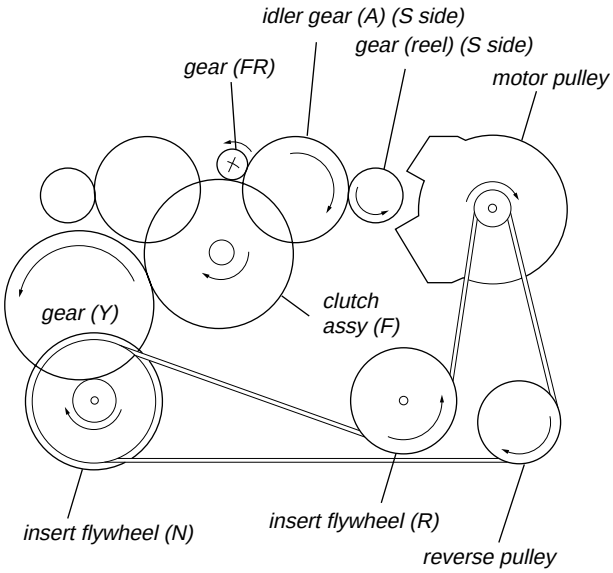
1. Rotational System of PLAY Mode



2. Rotational System of FF Mode

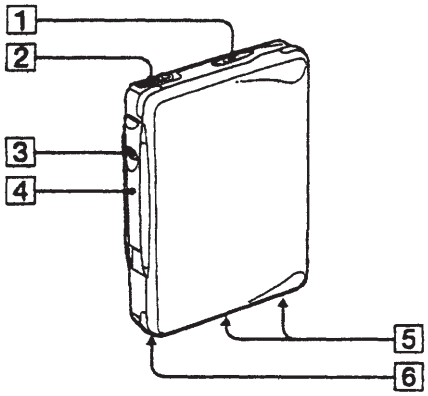


3. Rotational System of REW Mode

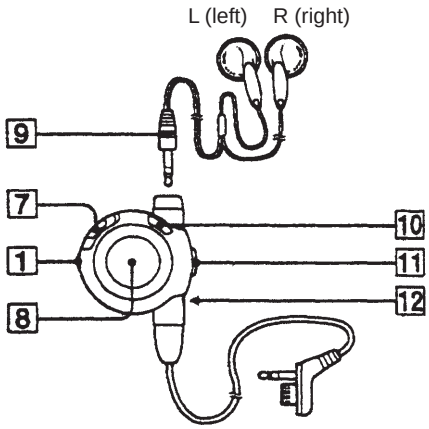


Location of controls

• Main unit



• Stereo headphones with remote control



1 VOL (volume) knob
2 ∩ REMOTE (headphone • remote control) jack
3 Operation button
4 OPEN/HOLD/OPERATION switch
5 Dry battery case contact
6 Rechargeable battery compartment
7 HOLD switch
8 Liquid crystal display window
9 Stereo mini-plug
10 MENU button
11 Jog lever
12 Clip

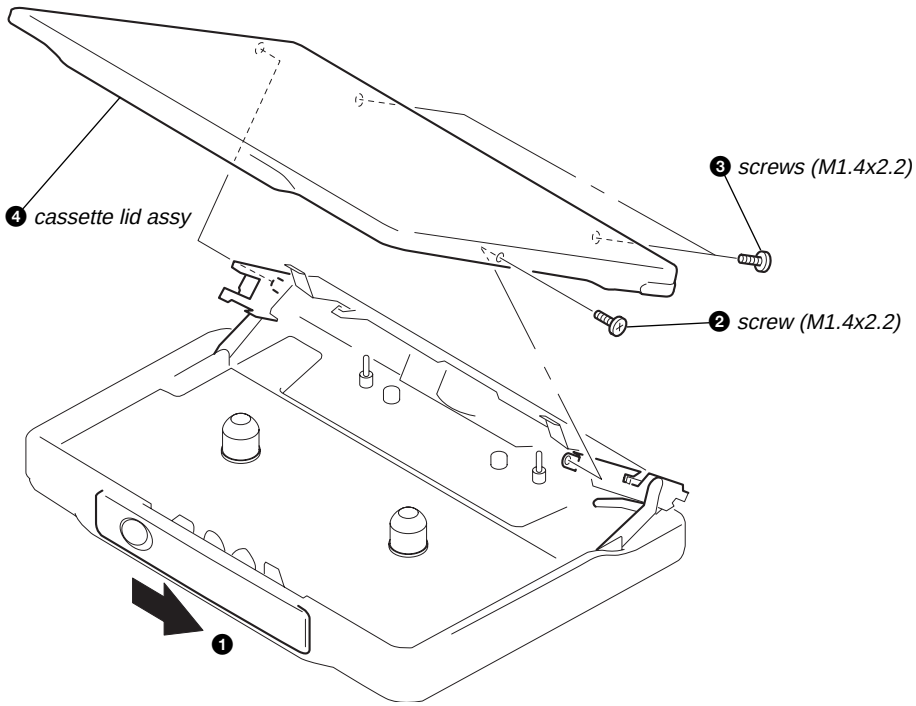
SECTION 3
DISASSEMBLY

• The equipment can be removed using the following procedure.

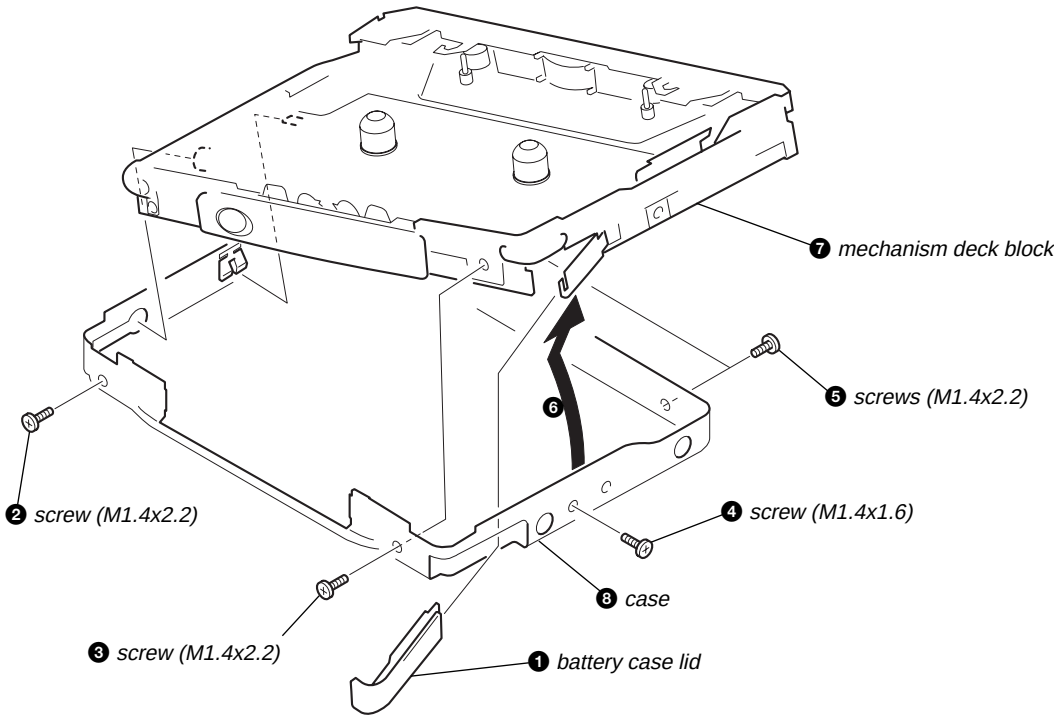
Set → Cassette Lid Assy
Case → Ornament (OPEN) Block Assy → Sub Board, Leaf Switch, Main Board → Belt (F1), Motor (F1) (M701)

Note : Follow the disassembly procedure in the numerical order given.

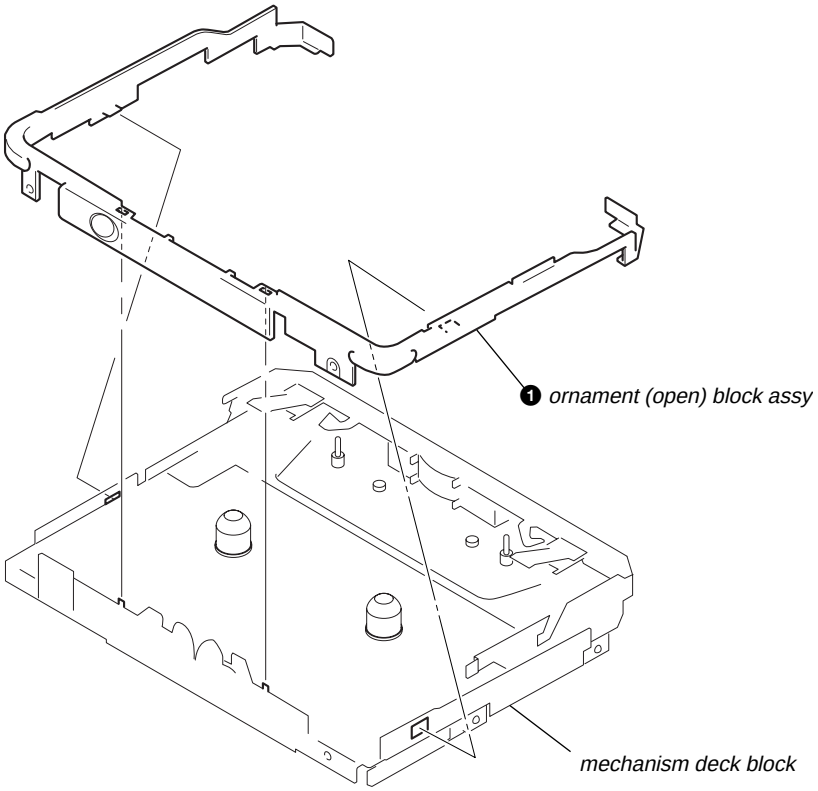
3-1. CASSETTE LID ASSY



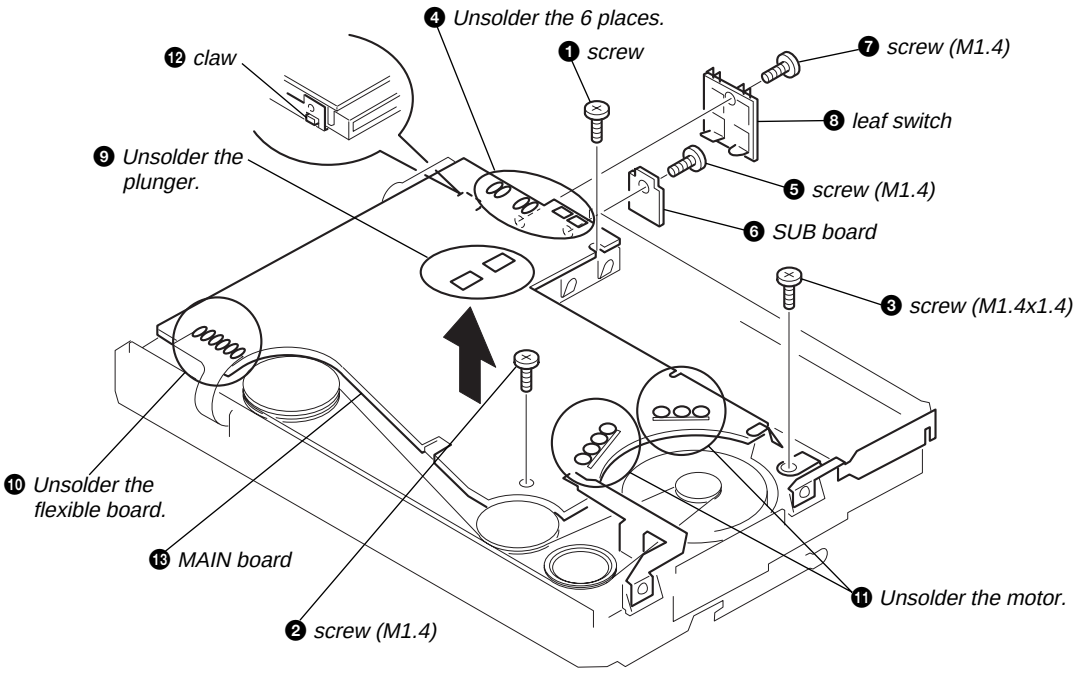
3-2. CASE



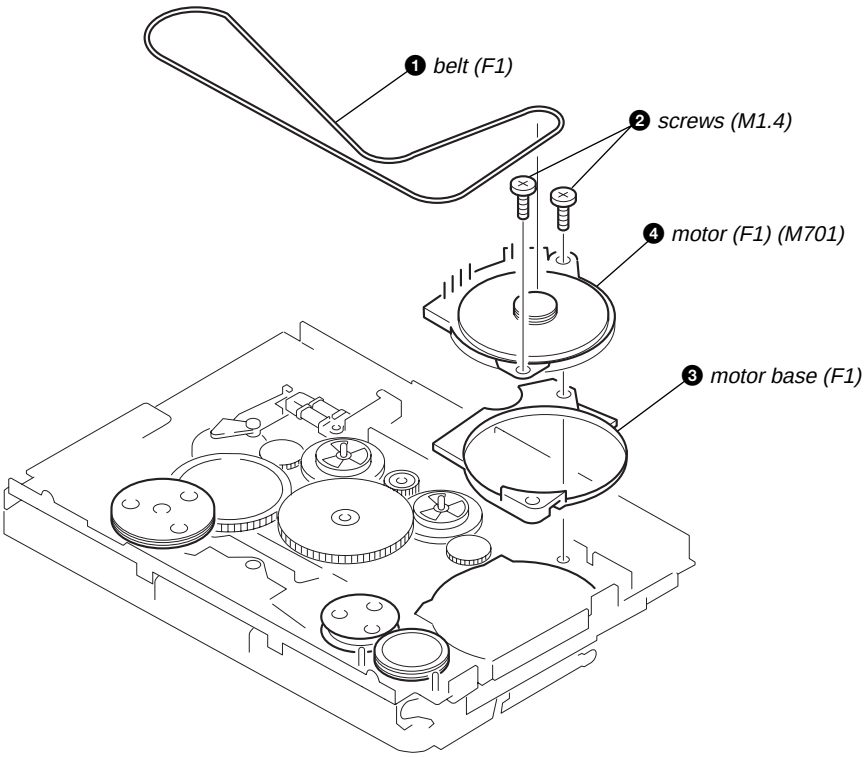
3-3. ORNAMENT (OPEN) BLOCK ASSY



3-4. SUB BOARD, LEAF SWITCH, MAIN BOARD



3-5. BELT (F1), MOTOR (F1) (M701)



SECTION 4
MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab :
   playback head pinch roller
   capstan rubber belt
2. Demagnetize the playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage (1.3 V) unless otherwise noted.

Torque Measurement

Mode	Torque Meter	Meter Reading
FWD	CQ-102C	15 – 25 g • cm (0.21 – 0.35 oz • inch)
FWD back tension		less than 2 g • cm (less than 0.03 oz • inch)
REV	CQ-102RC	15 – 25 g • cm (0.21 – 0.35 oz • inch)
REV back tension		less than 2 g • cm (less than 0.03 oz • inch)
FF, REW	CQ-201B	more than 50 g • cm (more than 0.69 oz • inch)

SECTION 5
ELECTRICAL ADJUSTMENTS

PRECAUTION

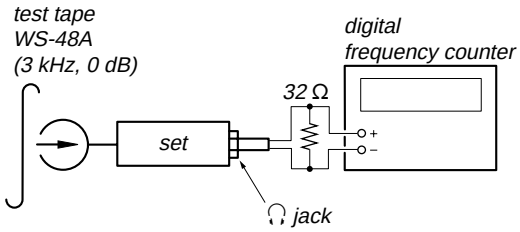
- Supplied voltage : 1.3 V
- Switches and control position
  VOL switch : NORM
- Remote control position
  HOLD switch : OFF
  VOL control : MAX
  SOUND mode : NORM
  DOLBY mode : OFF

Test Tape

Type	Signal	Used for
WS-48A	3 kHz, 0 dB	tape speed adjustment

Tape Speed Adjustment

Procedure :



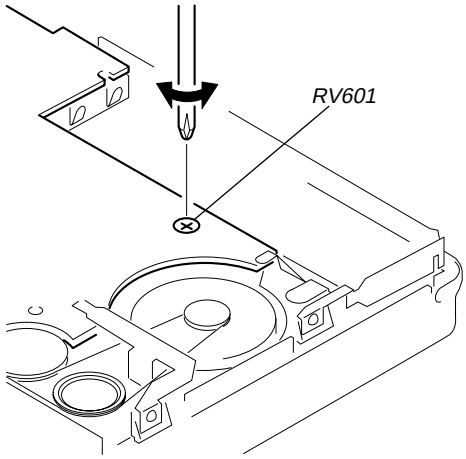
Playback WS-48A (tape center part) in the REV state and adjust RV601 so that the digital frequency counter reading becomes 3,000 Hz.

Specification Value :

Digital frequency counter
2,985 to 3,015 Hz

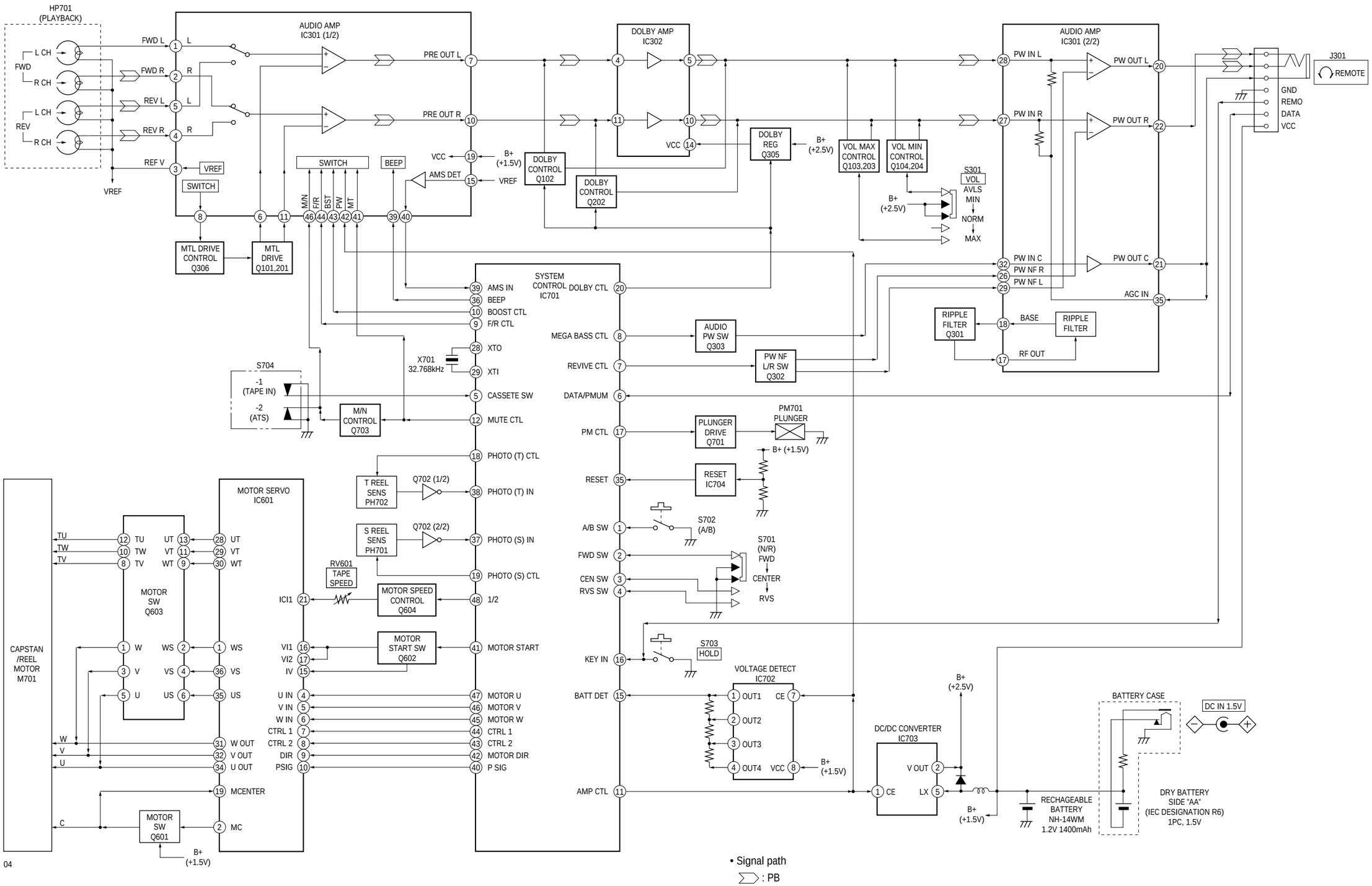
Playback WS-48A (tape center part) in the FWD state and confirm that the reading on digital frequency counter are between 2,985 to 3,015 Hz.

Adjustment Location :

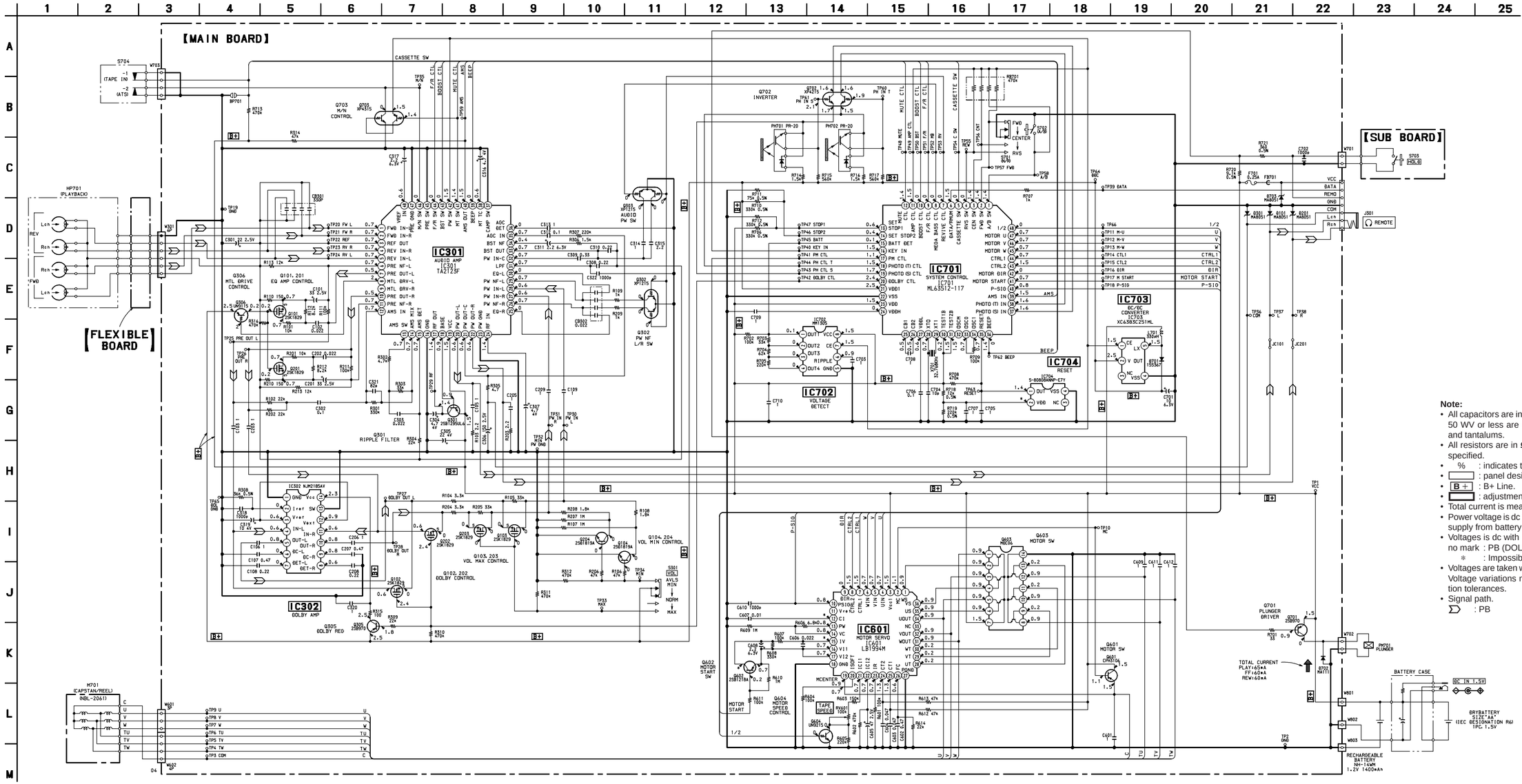


SECTION 6
DIAGRAMS

6-1. BLOCK DIAGRAM



6-3. SCHEMATIC DIAGRAM • Refer to page 19 for IC Block Diagrams.



Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- ▭ : panel designation.
- B+ : B+ Line.
- ▭ : adjustment for repair.
- Total current is measured with no cassette installed.
- Power voltage is dc 1.5 V and fed with regulated dc power supply from battery terminal.
- Voltages is dc with respect to ground in playback mode. no mark : PB (DOLBY : ON)
  ✳ : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ▷ : PB

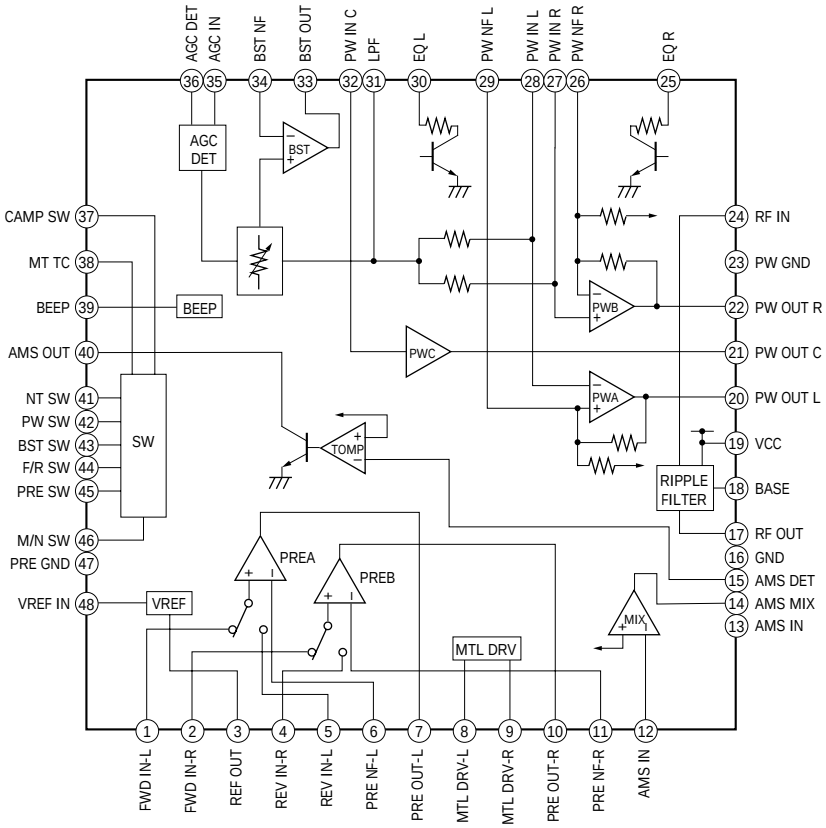
6-4. IC PIN DESCRIPTION

• IC701 ML63512-117 (SYSTEM CONTROL)

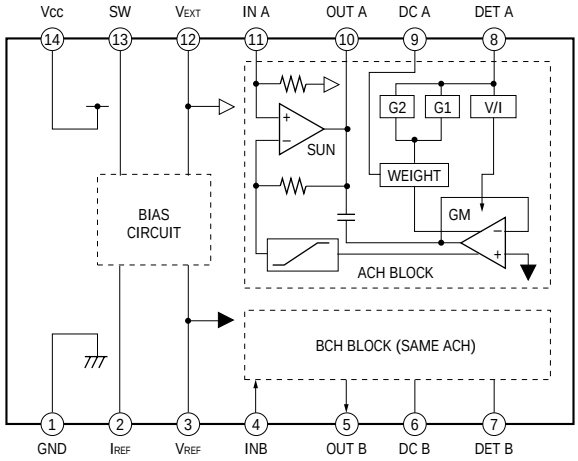
Pin No.	Pin Name	I/O	Pin Description
1	A/B SW	I	Side A/B detection switch signal input. L: side A, H: side B
2	FWD SW	I	MD mode switch (FWD) signal input. L: ON
3	CEN SW	I	MD mode switch (CENTER) signal input. L: ON
4	RVS SW	I	MD mode switch (RVS) signal input. L: ON
5	CASSETTE SW	I	Cassette with/without detection switch signal input. L: with, H: without
6	DATA/RMUM	I/O	Communication data signal output, Remote control with/without detection signal input.
7	REVIVE CTL	O	Tone select switch signal output. H: REVIVE, L: MEGA BASS/GROOVE
8	MEGA BASS CTL	O	Tone select switch signal output. H: MEGA BASS, L: OFF/GROOVE
9	F/R CTL	O	Head select signal output. L: FWD, H: RVS
10	BOOST CTL	O	Tone select switch signal output. H: BOOST ON, L: OFF
11	AMP CTL	O	Audio circuit • DDC control signal output. H: POWER ON
12	MUTE CTL	O	Audio muting control signal output. L: MUTE ON
13	SET STOP1	I	Set stop voltage signal input
14	SET STOP2	I	Set stop reference voltage signal input
15	BATT DET	I	Power voltage detection signal input
16	KEY IN	I	Operation switch signal input
17	PM CTL	I	Plunger control signal output. L: ON
18	PHOTO (T) CTL	O	Rotational detection intermittent signal output. (Take-up side) L: ON
19	PHOTO (S) CTL	O	Rotational detection intermittent signal output. (Supply side) L: ON
20	DOLBY CTL	O	Dolby circuit control signal output. L: ON
21	VDD1	—	Power supply pin. (for external interface)
22	VSS	—	Ground
23	VDD	—	Power supply pin
24	VDDH	—	Backup increased voltage power supply pin
25	CB1	—	Increased power supply capacitor connection pin
26	CB2	—	Increased power supply capacitor connection pin
27	VDDL	—	Internal logic positive side power supply pin
28	XT0	I	Crystal oscillator connection pin. (32.768 kHz)
29	XT1	O	Crystal oscillator connection pin. (32.768 kHz)
30	TEST1B	I	Test input pin. (Connect to power supply pin.)
31	TEST2B	I	Test input pin. (Connect to power supply pin.)
32	OSCM	—	Not used. (Open)
33	OSC0	I	High speed CR oscillation (800 kHz) resistor connection pin
34	OSC1	O	High speed CR oscillation (800 kHz) resistor connection pin
35	RESET	I	Reset signal input
36	BEEP	O	Beep signal output
37	PHOTO (S) IN	I	Rotational detection signal input
38	PHOTO (T) IN	I	Rotational detection signal input
39	AMS IN	I	Music with/without detection (AMS) signal input. (External interruption) H: without
40	P SIG	I	Motor P-SIG signal input. (External interruption)
41	MOTOR START	O	Motor wake-up signal output. L: wake-up
42	MOTOR DIR	O	Motor rotational direction control signal output. H: CCW, L: CW
43	CLRL 2	O	Mode select signal output to Motor servo IC (IC601).
44	CLRL 1	O	Mode select signal output to Motor servo IC (IC601).
45	MOTOR W	O	Motor control signal output
46	MOTOR V	O	Motor control signal output
47	MOTOR U	O	Motor control signal output
48	1/2	O	Motor speed 1/2 control signal output. L: 1/2 high speed, H: normally

• IC Block Diagrams

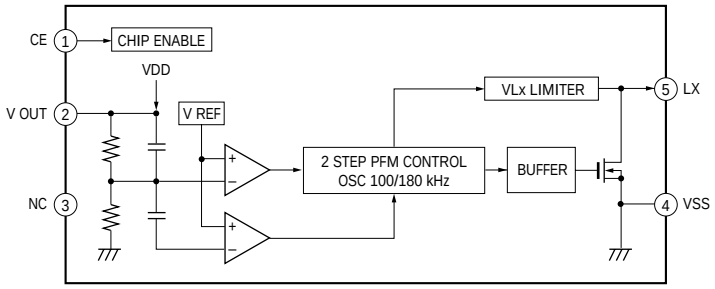
IC301 TA2123F



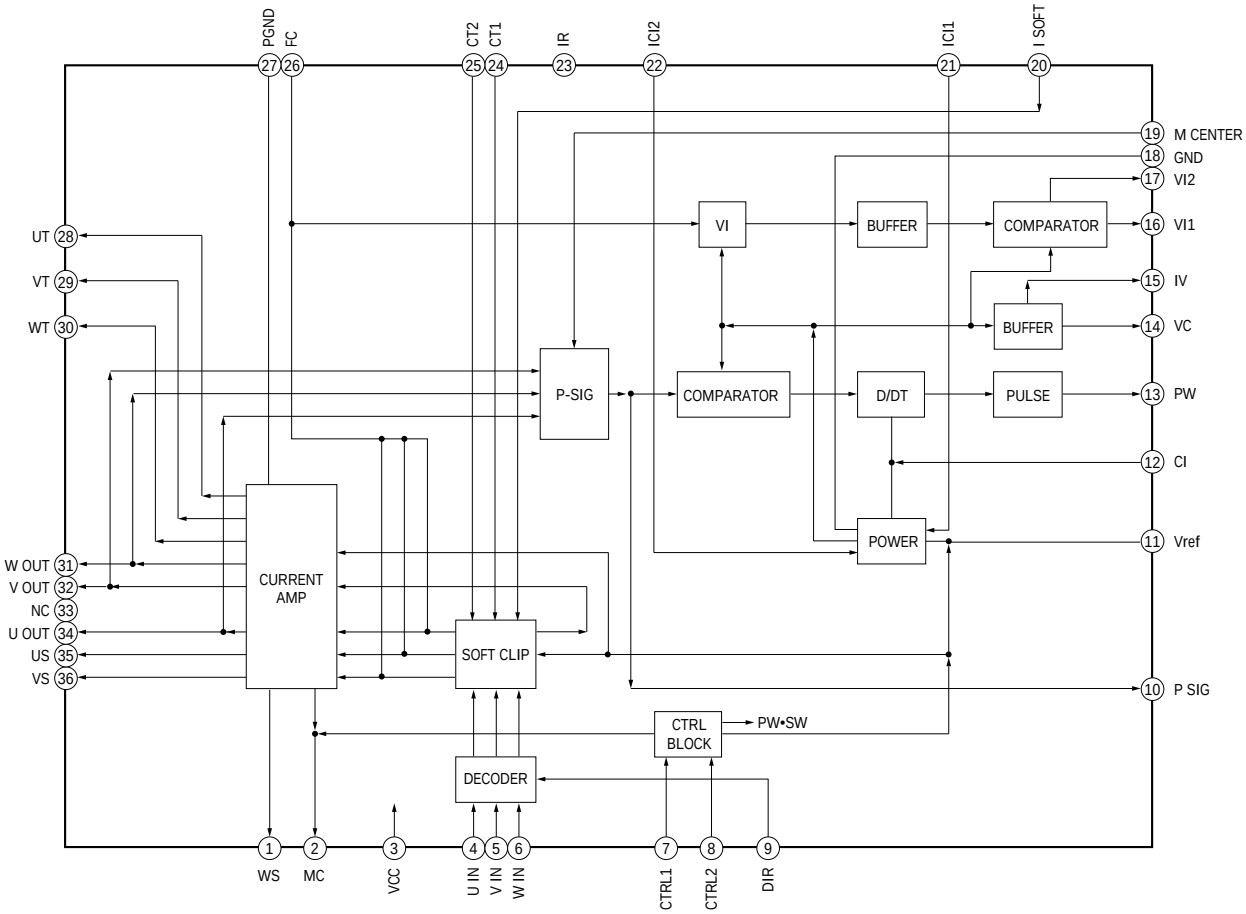
IC302 NJM2185AV



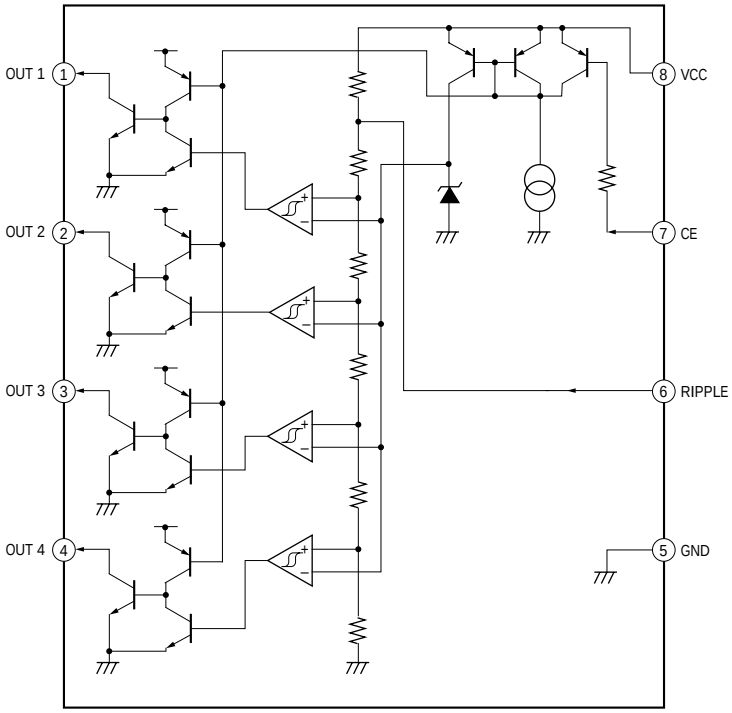
IC703 XC6383C251ML



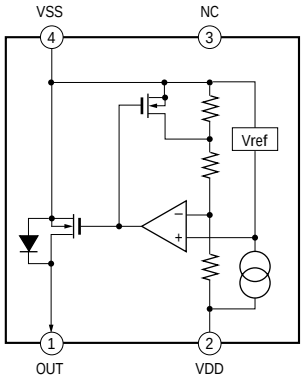
IC601 LB1994M



IC702 MM1305



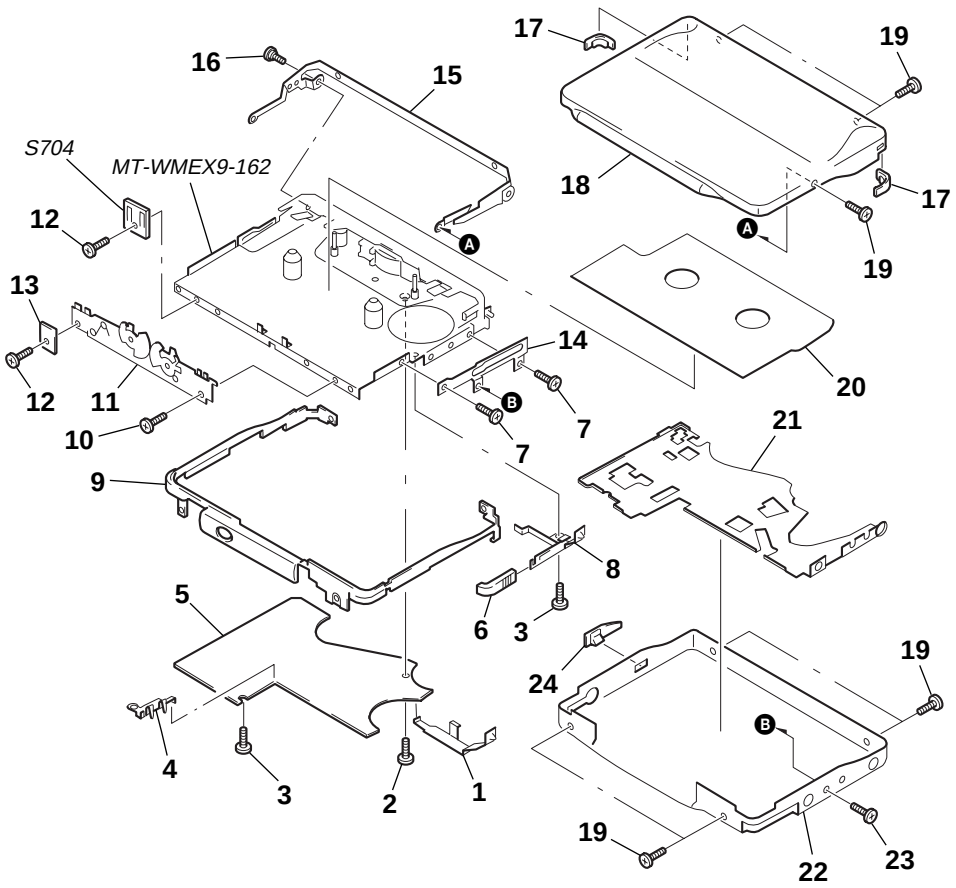
IC704 S-80808ANNP-E7Y



SECTION 7
EXPLODED VIEWS

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ... (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Accessories and packing materials are given in the last of this parts list.

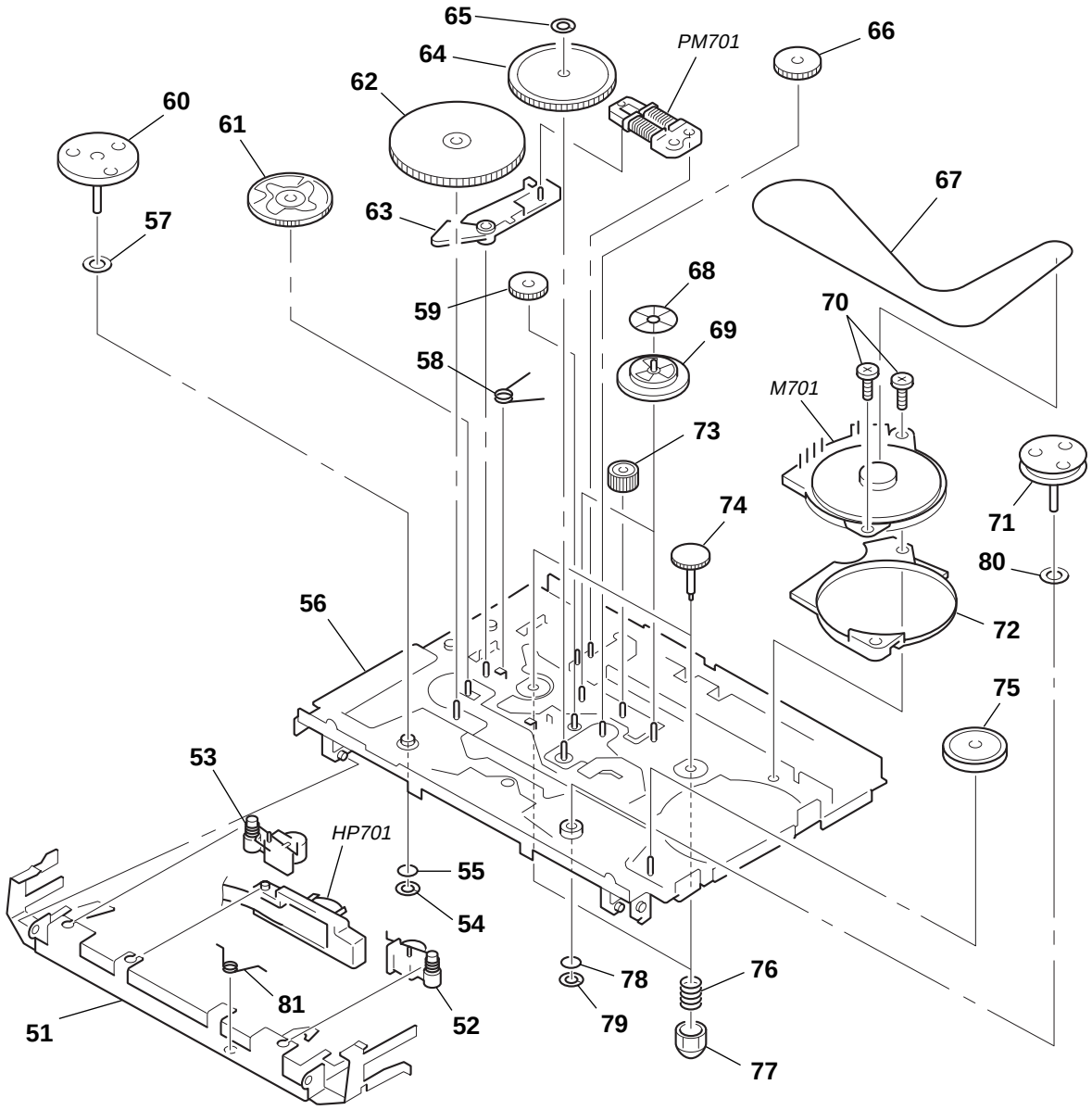
7-1. CASE SECTION



Ref. No.	Part No.	Description	Remark
1	3-029-213-01	TERMINAL PLATE	
2	3-345-648-71	SCREW (M1.4), TOOTHED LOCK	
3	3-375-114-41	SCREW	
4	3-029-210-01	TERMINAL PLATE (MINUS)	
5	A-3021-147-A	MAIN BOARD, COMPLETE	
6	3-029-923-01	LID (N), BATTERY CASE (GOLD)	
6	3-029-923-11	LID (L), BATTERY CASE (BLUE)	
6	3-029-923-21	LID (B), BATTERY CASE (BLACK)	
7	3-366-892-11	SCREW (M1.4X1.4)	
8	X-3376-278-1	TERMINAL PLATE ASSY, BATTERY	
9	A-3050-802-A	ORNAMENT (OPEN) BLOCK ASSY	
10	3-366-892-01	SCREW (M1.4)	
11	X-3376-277-1	BRACKET ASSY	
12	4-963-883-51	SCREW (M1.4), PRECISION PAN	
* 13	1-671-401-11	SUB BOARD	
14	3-029-217-01	LEVER (B), LOCK	
15	X-3376-371-1	BRACKET (CASSETTE) ASSY	
16	3-365-630-41	SCREW (M1.4)	

Ref. No.	Part No.	Description	Remark
17	3-029-932-01	ORNAMENT (CASSETTE)	
18	X-3376-372-1	LID ASSY (N), CASSETTE (GOLD)	
18	X-3376-602-1	LID ASSY (L), CASSETTE (BLUE)	
18	X-3376-603-1	LID ASSY (B), CASSETTE (BLACK)	
19	3-704-197-41	SCREW (M1.4X2.2), LOCKING (GOLD,BLUE)	
19	3-704-197-42	SCREW (M1.4X2.2), LOCKING (BLACK)	
20	3-029-205-01	MD COVER	
21	3-029-922-01	ORNAMENT (CASE)	
22	3-029-921-01	CASE (N) (GOLD)	
22	3-029-921-11	CASE (L) (BLUE)	
22	3-029-921-21	CASE (B) (BLACK)	
23	3-704-197-01	SCREW (M1.4X1.6), LOCKING (BLACK)	
23	3-704-197-03	SCREW (M1.4X1.6), LOCKING (GOLD,BLUE)	
24	3-029-933-01	KNOB (VOL) (N) (GOLD)	
24	3-029-933-11	KNOB (VOL) (L) (BLUE)	
24	3-029-933-21	KNOB (VOL) (B) (BLACK)	
S704	1-762-553-11	SWITCH, LEAF (TAPE IN,ATS)	

7-2. MECHANISM DECK SECTION (MT-WMEX9-162)



Ref. No.	Part No.	Description	Remark
51	X-3376-293-1	HOLDER ASSY	
52	X-3376-295-1	PINCH LEVER (R) ASSY	
53	X-3376-294-1	PINCH LEVER (N) ASSY	
54	3-029-275-01	WASHER (STOPPER N)	
55	3-029-278-01	WASHER	
56	X-3376-291-1	CHASSIS ASSY (F)	
57	3-386-694-01	WASHER	
58	3-029-287-01	SPRING (TG), TORSION	
59	3-029-281-01	GEAR, IDLER (B)	
60	3-029-306-01	FLYWHEEL (N), INSERT	
61	3-029-285-01	GEAR, CAM	
62	3-029-282-01	GEAR (Y)	
63	3-029-284-01	LEVER, TRIGGER	
64	X-3376-813-1	CLUTCH ASSY (F)	
65	3-932-724-21	WASHER	
66	3-029-286-01	GEAR (NR)	
67	3-029-884-01	BELT (F1)	
68	3-007-433-01	SHEET (N), REFLECTION	

Ref. No.	Part No.	Description	Remark
69	3-029-283-01	GEAR, IDLER (A)	
70	3-029-765-01	SCREW (M1.4), TOOTHED LOCK	
71	3-029-268-01	FLYWHEEL (R), INSERT	
72	3-029-883-01	RETAINER BASE (F1), MOTOR	
73	3-029-273-01	GEAR (FR)	
74	3-010-273-02	GEAR (REEL)	
75	3-029-288-01	PULLEY, REVERSE	
76	3-010-954-01	SPRING (BT), COMPRESSION	
77	3-010-274-02	TABLE, REEL	
78	3-029-289-01	WASHER	
79	3-029-276-01	WASHER (STOPPER R)	
80	3-007-428-01	WASHER (R)	
81	3-029-271-01	SPRING (HD)	
HP701	1-500-576-11	HEAD, MAGNETIC (PLAYBACK)	
M701	1-763-165-11	MOTOR (F1) (CAPSTAN/REEL) (including PULLEY)	
PM701	1-454-674-31	SOLENOID, PLUNGER	

SECTION 8
ELECTRICAL PARTS LIST

MAIN

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : µ, for example:
  uA.. : µA.. uPA.. : µPA..
  uPB.. : µPB.. uPC.. : µPC.. uPD.. : µPD..
- CAPACITORS
  uF : µF
- COILS
  uH : µH

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
	A-3021-147-A	MAIN BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-107-520-11	TANTAL. CHIP	33uF	20%	2.5V
C102	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C103	1-115-156-11	CERAMIC CHIP	1uF		10V
C105	1-115-156-11	CERAMIC CHIP	1uF		10V
C106	1-115-156-11	CERAMIC CHIP	1uF		10V
C107	1-113-619-11	CERAMIC CHIP	0.47uF	10%	6.3V
C108	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C109	1-115-156-11	CERAMIC CHIP	1uF		10V
C201	1-107-520-11	TANTAL. CHIP	33uF	20%	2.5V
C202	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C203	1-115-156-11	CERAMIC CHIP	1uF		10V
C205	1-115-156-11	CERAMIC CHIP	1uF		10V
C206	1-115-156-11	CERAMIC CHIP	1uF		10V
C207	1-113-619-11	CERAMIC CHIP	0.47uF	10%	6.3V
C208	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C209	1-115-156-11	CERAMIC CHIP	1uF		10V
C301	1-135-316-11	TANTAL. CHIP	22uF	20%	2.5V
C302	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C303	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C304	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C305	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C306	1-125-976-11	TANTAL. CHIP	150uF	20%	2.5V
C307	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C308	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C309	1-165-112-11	CERAMIC CHIP	0.33uF		16V
C310	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C311	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C312	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C313	1-115-156-11	CERAMIC CHIP	1uF		10V
C314	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C315	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C316	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C317	1-113-600-11	TANTAL. CHIP	2.2uF	20%	6.3V
C318	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C319	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C320	1-115-156-11	CERAMIC CHIP	1uF		10V
C321	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C322	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C601	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C602	1-113-619-11	CERAMIC CHIP	0.47uF	10%	6.3V
C603	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C604	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C605	1-119-663-11	TANTAL. CHIP	47uF	20%	2.5V
C606	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C607	1-127-671-11	CERAMIC CHIP	0.01uF	5%	50V
C608	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C609	1-115-156-11	CERAMIC CHIP	1uF		10V
C610	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C611	1-115-156-11	CERAMIC CHIP	1uF		10V
C612	1-115-156-11	CERAMIC CHIP	1uF		10V
C701	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C702	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C703	1-115-156-11	CERAMIC CHIP	1uF		10V
C704	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C705	1-115-156-11	CERAMIC CHIP	1uF		10V
C706	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C707	1-115-156-11	CERAMIC CHIP	1uF		10V
C708	1-115-156-11	CERAMIC CHIP	1uF		10V
C709	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C710	1-115-156-11	CERAMIC CHIP	1uF		10V
CB301	1-127-678-21	CERAMIC CHIP	330PF		50V
CB302	1-127-576-21	CERAMIC CHIP	0.022uF		50V
		< DIODE >			
D101	8-719-422-37	DIODE MA8051			
D201	8-719-422-37	DIODE MA8051			
D301	8-719-422-37	DIODE MA8051			
D701	8-719-049-09	DIODE 1SS367-T3SONY			
D702	8-719-404-49	DIODE MA111			
D703	8-719-422-37	DIODE MA8051			
		< FUSE >			
F701	1-533-792-11	FUSE (SMD) (0.25A)			
		< FERRITE BEAD >			
FB701	1-414-760-21	INDUCTOR, FERRITE BEAD			
		< IC >			
IC301	8-759-549-78	IC TA2123F(EL)			
IC302	8-759-488-80	IC NJM2185AV-TE2			
IC601	8-759-553-51	IC LB1994M-TLM			
IC701	8-759-560-92	IC ML63512-117TBZ060			
IC702	8-759-438-27	IC MM1305BWBE			

MAIN

Ref. No.	Part No.	Description			Remark
IC703	8-759-553-28	IC XC6383C251ML			
IC704	8-759-572-21	IC S-80808ANNP-E7Y-T2			
		< JACK >			
J301	1-779-867-81	JACK (🎧 REMOTE)			
		< JUMPER RESISTOR >			
JC101	1-216-864-11	METAL CHIP	0	5%	1/16W
JC201	1-216-864-11	METAL CHIP	0	5%	1/16W
		< COIL >			
L701	1-412-034-11	INDUCTOR CHIP	330uH		
		< PHOTO REFLECTOR >			
PH701	8-749-014-43	PHOTO REFLECTOR	PR-20-T		
PH702	8-749-014-43	PHOTO REFLECTOR	PR-20-T		
		< TRANSISTOR >			
Q101	8-729-028-26	FET	2SK1829 (TE85L)		
Q102	8-729-028-26	FET	2SK1829 (TE85L)		
Q103	8-729-028-26	FET	2SK1829 (TE85L)		
Q104	8-729-230-63	TRANSISTOR	2SC4116-YG		
Q201	8-729-028-26	FET	2SK1829 (TE85L)		
Q202	8-729-028-26	FET	2SK1829 (TE85L)		
Q203	8-729-028-26	FET	2SK1829 (TE85L)		
Q204	8-729-230-63	TRANSISTOR	2SC4116-YG		
Q301	8-729-800-71	TRANSISTOR	2SB815B7-TB		
Q302	8-729-426-36	TRANSISTOR	XP1215-TXE		
Q303	8-729-426-36	TRANSISTOR	XP1215-TXE		
Q305	8-729-046-89	TRANSISTOR	2SB970-S (TX).SO		
Q306	8-729-037-63	TRANSISTOR	UN9115J- (TX).SO		
Q601	8-729-043-94	TRANSISTOR	CPH3106-PM-TL		
Q602	8-729-420-24	TRANSISTOR	2SB1218A-QRS		
Q603	8-729-039-36	TRANSISTOR	MDC06TR		
Q604	8-729-037-76	TRANSISTOR	UN9215J- (TX).SO		
Q701	8-729-046-89	TRANSISTOR	2SB970-S (TX).SO		
Q702	8-729-427-51	TRANSISTOR	XP4215-TXE		
Q703	8-729-425-46	TRANSISTOR	XP4315-TXE		
		< RESISTOR >			
R101	1-216-833-11	METAL CHIP	10K	5%	1/16W
R102	1-216-837-11	METAL CHIP	22K	5%	1/16W
R103	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R104	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R105	1-216-839-11	METAL CHIP	33K	5%	1/16W
R106	1-216-841-11	METAL CHIP	47K	5%	1/16W
R107	1-216-857-11	METAL CHIP	1M	5%	1/16W
R108	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R109	1-216-821-11	METAL CHIP	1K	5%	1/16W
R110	1-216-811-11	METAL CHIP	150	5%	1/16W
R111	1-216-845-11	METAL CHIP	100K	5%	1/16W
R112	1-216-832-11	METAL CHIP	8.2K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R113	1-216-834-11	METAL CHIP	12K	5%	1/16W
R201	1-216-833-11	METAL CHIP	10K	5%	1/16W
R202	1-216-837-11	METAL CHIP	22K	5%	1/16W
R203	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R204	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R205	1-216-839-11	METAL CHIP	33K	5%	1/16W
R206	1-216-841-11	METAL CHIP	47K	5%	1/16W
R207	1-216-857-11	METAL CHIP	1M	5%	1/16W
R208	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R209	1-216-821-11	METAL CHIP	1K	5%	1/16W
R210	1-216-811-11	METAL CHIP	150	5%	1/16W
R211	1-216-845-11	METAL CHIP	100K	5%	1/16W
R212	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R213	1-216-834-11	METAL CHIP	12K	5%	1/16W
R301	1-216-851-11	METAL CHIP	330K	5%	1/16W
R302	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R303	1-216-839-11	METAL CHIP	33K	5%	1/16W
R304	1-216-837-11	METAL CHIP	22K	5%	1/16W
R305	1-216-793-11	RES,CHIP	4.7	5%	1/16W
R306	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R307	1-216-849-11	METAL CHIP	220K	5%	1/16W
R308	1-218-884-11	RES, CHIP	36K	0.50%	1/16W
R309	1-216-837-11	METAL CHIP	22K	5%	1/16W
R310	1-216-853-11	METAL CHIP	470K	5%	1/16W
R311	1-216-853-11	METAL CHIP	470K	5%	1/16W
R312	1-216-853-11	METAL CHIP	470K	5%	1/16W
R314	1-216-841-11	METAL CHIP	47K	5%	1/16W
R315	1-216-809-11	METAL CHIP	100	5%	1/16W
R316	1-216-853-11	METAL CHIP	470K	5%	1/16W
R601	1-216-845-11	METAL CHIP	100K	5%	1/16W
R602	1-216-853-11	METAL CHIP	470K	5%	1/16W
R603	1-216-847-11	METAL CHIP	150K	5%	1/16W
R604	1-216-845-11	METAL CHIP	100K	5%	1/16W
R605	1-216-849-11	METAL CHIP	220K	5%	1/16W
R606	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R607	1-216-845-11	METAL CHIP	100K	5%	1/16W
R608	1-216-851-11	METAL CHIP	330K	5%	1/16W
R609	1-216-857-11	METAL CHIP	1M	5%	1/16W
R610	1-216-857-11	METAL CHIP	1M	5%	1/16W
R611	1-216-845-11	METAL CHIP	100K	5%	1/16W
R612	1-216-841-11	METAL CHIP	47K	5%	1/16W
R613	1-216-841-11	METAL CHIP	47K	5%	1/16W
R614	1-216-837-11	METAL CHIP	22K	5%	1/16W
R701	1-216-803-11	METAL CHIP	33	5%	1/16W
R702	1-216-845-11	METAL CHIP	100K	5%	1/16W
R703	1-216-839-11	METAL CHIP	33K	5%	1/16W
R704	1-218-447-11	RES, CHIP	62K	5%	1/16W
R705	1-216-849-11	METAL CHIP	220K	5%	1/16W
R706	1-218-907-11	RES, CHIP	330K	0.50%	1/16W
R707	1-216-821-11	METAL CHIP	1K	5%	1/16W
R708	1-216-853-11	METAL CHIP	470K	5%	1/16W
R709	1-216-845-11	METAL CHIP	100K	5%	1/16W
R710	1-218-907-11	RES, CHIP	330K	0.50%	1/16W

Ref. No.	Part No.	Description			Remark
R711	1-218-892-11	RES, CHIP	75K	0.50%	1/16W
R712	1-218-907-11	RES, CHIP	330K	0.50%	1/16W
R713	1-216-853-11	METAL CHIP	470K	5%	1/16W
R714	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R715	1-216-854-11	METAL CHIP	560K	5%	1/16W
R716	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R717	1-216-854-11	METAL CHIP	560K	5%	1/16W
R718	1-218-873-11	RES, CHIP	12K	0.50%	1/16W
R719	1-218-903-11	RES, CHIP	220K	0.50%	1/16W
R720	1-218-870-11	RES, CHIP	9.1K	0.50%	1/16W
R721	1-218-836-11	RES, CHIP	360	0.50%	1/16W
		< NETWORK RESISTOR >			
RB701	1-234-247-21	RES, NETWORK	470K	(3216)	
		< VARIABLE RESISTOR >			
RV601	1-223-325-21	RES, ADJ, METAL GLAZE	100K		
		< SWITCH >			
S301	1-692-605-11	SWITCH, SLIDE (VOL)			
S701	1-771-475-21	SWITCH, SLIDE (N/R)			
S702	1-762-516-11	SWITCH, PUSH (1 KEY) (A/B)			
		< VIBRATOR >			
X701	1-579-258-11	VIBRATOR, CRYSTAL (32.768kHz)			
**********					
*	1-671-401-11	SUB BOARD			
		**********			
		< SWITCH >			
S703	1-771-053-21	SWITCH, KEY BOARD (HOLD)			
**********					
		MISCELLANEOUS			
		**********			
HP701	1-500-576-11	HEAD, MAGNETIC (PLAYBACK)			
M701	1-763-165-11	MOTOR (F1) (CAPSTAN/REEL) (including PULLEY)			
PM701	1-454-674-32	SOLENOID, PLUNGER			
S704	1-762-553-11	SWITCH, LEAF (TAPE IN,ATS)			
**********					
		ACCESSORIES & PACKING MATERIALS			
		**********			
	1-418-020-11	REMOTE CONTROL UNIT (RM-WME21L)			
⚠	1-528-580-21	BATTERY CHARGER (BC-7HT)			
	1-528-842-11	BATTERY, NICKEL HYDROGEN (NH-14WM)			
⚠	1-569-007-11	ADAPTOR, CONVERSION 2P			
	1-759-700-21	CASE, BATTERY			
	3-008-521-01	CASE, BATTERY CHARGE (for NH-14WM)			
	3-864-894-01	MANUAL, INSTRUCTION (JAPANESE,ENGLISH, KOREAN)			
	3-929-799-01	CASE, CARRYING			
	8-953-220-90	HEADPHONE MDR-ED132SP//K SET			

The components identified by mark ⚠or dotted line with mark. ⚠are critical for safety. Replace only with part number specified.

9-924-980-11

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